The Second Demographic Transition Theory & Fertility Changes in Kerala, India

I. Summary

This paper examines the relevance of the theory of the second demographic transition (SDT) to below replacement fertility in the Indian state of Kerala. With a total fertility rate of 1.7 in 2001, Kerala's fertility rate has been below replacement levels since at least the early 1990s. With a population of 32 million people, and a unique political, cultural and development history, the Indian State of Kerala deserves to be studied in its own right; Kerala's development experience suggests that fertility and mortality declines are possible at lower levels of economic development. Using cross-sectional data from three waves of the National Family Health Survey, this paper will examine the changes in the proximate determinants of fertility by age-cohort since Kerala reached below replacement fertility. Expected findings include that premarital cohabitation is negligible, fertility occurs within marriage, and most women complete child-bearing in their 20s. Contraception largely remains a means of preventing higher parity births in order to devote more attention to the well-being of existing children. Although the age of first marriage and first birth in Kerala is later than the rest of the country, this difference is likely to reflect a long-existing disparity and is not illustrative of a fundamental shift towards individualism accompanying fertility decline. Below replacement fertility in Kerala appears less related to the ideation changes central to the SDT literature. Preliminary analysis suggests that a series of factors resulted in an earlier and more rapid decline in fertility in Kerala during the first demographic transition relative to other parts of India and, that this decline in fertility has persisted without the behavioral and ideological changes central to the SDT.

II. Theoretical Background: the Second Demographic Transition

The theories of the first and second demographic transition help to explain converging patterns of mortality, fertility, and household structures around the world. The second demographic transition concentrates on the changes in family formation related to below replacement fertility.

In 1986, Ron Lesthaeghe and D.J. van de Kaa developed the notion of the second demographic transition to explain new patterns of living arrangements and low fertility in northwest Europe since the late 1960s (van de Kaa 2004). Persistent below replacement fertility is the key distinguishing demographic characteristic of the SDT. In addition, several behavioral and attitudinal patterns underlie the SDT (van de Kaa, 1987). First, there is a shift from the dominance of legal marriage to cohabitation and alternative living arrangements (van de Kaa 1987). Second, the focus of the family shifts from children to the adult couple; childbearing or childlessness are considered within the context of enriching the lives of adults (Rowland 2003). Third, contraception shifts from a means of preventing births to a means of self-fulfillment. These latter two changes are associated with a greater emphasis on 'higher order needs' during the SDT (Lesthaeghe and Neidert 2006). Finally, the SDT involves the "replacement of the nuclear family household by a complex range of alternatives," resulting from a "wider spectrum of socially sanctioned choices, together with a higher incidence of divorce" (Rowland 2003). The SDT marks a turning point in the demographic trend of a population not replacing itself and in norms and beliefs that emphasize individual self-actualization.

Most of the literature on the second demographic transition has focused on Europe and other western nations. However, recent attention to low fertility in Japan, South Korea, Hong Kong, and Singapore suggests that the SDT may be more than a "parochial northwestern European idiosyncrasy" (Coleman 2003 quoted in Lesthaeghe and Neidert 2006: 670). Low fertility rates in parts of East Asia have been largely attributed to the behavioral and ideological

changes central to the SDT theory (Boling 2008; Jones 2007; Retherford and Ogawa 2005). One determinant of fertility relevant in Japan, which is largely irrelevant in the western literature on the SDT but potentially significant in sections of the developing world, is a decrease in arranged marriage to virtually zero in recent years (Retherford and Ogawa 2005).

This paper seeks to explore the relevance of the second demographic transition in understanding persistently low fertility in Kerala and in explaining regional variations in fertility in India. Starting in the late 1980s and early 1990s, the Indian State of Kerala reached below replacement fertility and had the lowest TFR among the major Indian states. By understanding the context in which below replacement fertility has occurred within one region of India, this paper hopes to contribute to our understanding of the determinants of low fertility in a developing country context and the relevance of the SDT in patterns of below replacement fertility in India.

III. Data

The key source of data for this paper includes three waves of the National Family Health Survey (NFHS) of India, which is also part of the Demographic Surveillance Systems (DSS). The NFHS covers a range of topics on fertility, family planning and maternal and child health. The NFHS includes both a household questionnaire and an individual questionnaire completed for all ever-married women age 13-49 within the sampled household, for the 15 year period before the survey. Similar to the Sample Registration System in India, the NFHS is designed to provide accurate state- and national-level estimates.

For fertility information prior to the 1990s, this paper will use data from the Sample Registration System (SRS) and the Decennial Census of India. While census data exists since the late 1800s, the earliest annual data on birth and death rates in Kerala was collected in the latter half of the 1960s through the SRS.

I will also draw on the existing ethnographic literature on fertility behavior and family formation in Kerala to contribute to and contextualize the findings from the survey data.

IV. Research Methods

The major portion of the analysis will examine change in the proximate determinants of fertility since the early 1990s using three waves of NFHS data from Kerala. The proximate determinants (including marriage or first cohabitation, contraceptive use, induced abortion, and post-partum infecundabilty) constrain fertility and are the mechanisms through which individual decision-making and broader cultural factors influence fertility outcomes (Rowland 2003). I will analyze changes in the proximate determinants of fertility by age cohorts to see if the patterns of behavior in Kerala over time correspond with the expected changes central to the SDT literature. For example, the SDT literature consistently finds later median ages at first marriage and first birth, increased premarital cohabitation and births outside of marriage, and near universal use of contraception where the SDT has begun. I will also examine differences in the proximate determinants of fertility by socio-economic and religious groups to see if there are group-specific variations over time. This analysis will help to test the hypothesis that certain groups within Kerala may be exhibiting behaviors and ideation change central to the SDT, while other groups may not.

The second portion of the analysis will try to contextualize the findings from the first portion of the analysis by a) looking at fertility changes in Kerala from a longer historical window and b) comparing the fertility trends and proximate determinants of fertility in Kerala to other parts of India. Using data from the Indian Census and SRS, reconstructing the historical window from 1900 to 2006 will help to make sense of Kerala's more recent below replacement

fertility within its longer history fertility decline, including an analysis of the proximate determinants of fertility that were important during Kerala's first demographic transition. Comparing the finding from Kerala with other parts of the country will help to differentiate the localized socio-political factors that have helped to bring about low fertility in Kerala from those factors that have played a role in fertility decline across the country.

V. Preliminary Findings

A preliminary analysis of NFHS data suggests the following changes in the proximate determinants of fertility since Kerala achieved below replacement fertility in the late 1980s/ early 1990s:

- *The on-going social dominance of marriage and negligible cohabitation outside of marriage.* The proportion of never married women between the ages of 20-49 has decreased in Kerala, from 7% in 1992-1993 to 4% in 2005-2006. The proportion of divorces in Kerala does not seem to be changing over time; both in 1992-1993 and 1998-1999, approximately 4% of ever married women had been divorced. The median age of first marriage for women aged 25-29 in Kerala has increased since 1992. The age at first birth among women in Kerala is also increasing; this is no surprise since nearly all births occur within marriage and the age of first marriage is increasing. Due to the high rate of unemployment in Kerala, another factor that requires more attention is the effect of the spousal migration. Even though the proportion of married adults remains consistently high in Kerala, the actual co-habitation of spouses is likely to have decreased. Although it is difficult to quantify the impact of this emigration on changes in proximate determinants of fertility, it is worth noting, both with regards to decreased sexual intercourse due to periods of separation and the changes in world view that come from the migration experience.
- *Regarding contraception there is universal knowledge and widespread use.* In 1992-1993, over 99% of currently married women knew at least one modern method of contraception and 54% of married women used modern contraceptive methods while 63% used any method. In 2005-2006, the percentage of married women who had knowledge of contraception remained nearly universal (99%) in Kerala, while the percentage of women who used any method of contraceptive increased to 69%. Sterilization is the most common form of modern contraception. In 1992-1993 over 41% of women of child-bearing age had been sterilized in Kerala, while in 1998-1999 this percentage increased to over 48% of women and remained at that level in 2005-2006.
- *Abortion: unreliable data, though sex-selective abortion seem negligible.* The available statistics on abortion in Kerala and throughout India are not reliable. The 1992-1993 NFHS asked about the outcome of all pregnancies for ever-married women. In Kerala, the percentage of induced abortion was 1.6%, while the all-India average was 1.3%. Although we cannot confirm the level of induced abortions in Kerala, the available data on sex ratios suggest that sex-selective abortions are negligible in Kerala.
- *Post-partum insusceptibility is short.* In 1992-1993, Kerala's median postpartum insusceptibility was 7 months, which was the least in South India and less than the all-India average of 10 months.

Although the preliminary findings lack a complete age-cohort analysis over time, I do not expect the results to significantly differ when I complete this analysis. Revisiting the typical sequence of events leading to below replacement, Kerala appears in a different position from the pattern of below replacement fertility found in most developed countries. The shift from legal marriage to

cohabitation has not occurred. Persistent below-replacement level fertility in Kerala has resulted within a context of near universal marriage; almost all births occur within marriage and the custom of arranged marriage remains prevalent. The closeness of the median age of first marriage and the median age at first birth suggests that once married, couples are not delaying child birth considerably. The difference between the median age at first and last birth reveals a short reproductive span—largely concentrated in the early to mid twenties. Decreases in higher parity births and in births at older ages seem to allow parents to devote more attention and resources to children already born. Contraception remains a means of preventing higher parity births instead of a path towards self-fulfillment and higher order needs. Finally, extended and nuclear families have not been replaced by complex range of alternatives found in the west, and divorce does not seem to increasing significantly. However, the challenge of finding employment in Kerala has resulted in many split families, as adult males disproportionately seek employment in the Middle East; these separations may be leading to a decrease in the frequency of sexual intercourse. The observed shifts in family formation in Kerala appear less motivated by the ideation changes in the SDT and more a continuation of the first demographic transition.

Along with an age-specific analysis of changes in the proximate determinants of fertility over time, the paper will explore difference in fertility rates and the proximate determinants of fertility by social groups. For example, the median age of first marriage does vary across groups. Based on SRS data from the 1990s, females in Kerala who are illiterate tend to get married at a median age of 18, while those have a high school education have a median age of first marriage about 5 years later. The final paper will include a more complete analysis by socio-economic groups to see if the behavior and ideation changes central to the SDT are occurring within specific groups.

The century long historical view on fertility decline in Kerala will highlight that rapid fertility decline began in Kerala in the late 1950s and early 1960. Kerala's experience of persistent below replacement fertility may be explained by factors important to its earlier experience of fertility decline from high levels; both are driven by a decline in marital fertility and a reduction in the reproductive time span. This paper expects to find that Kerala's "advantage" with regards to several proximate determinants (e.g. delayed median age at first marriage; later age at first birth; median birth interval of 41 months) relative to other parts of India predates below replacement fertility and the onset of fertility decline in the late 1950s and early 1960s.

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